

paragraph, which has been objected to as providing for a plurality of projections in any of three different locations, has been substantially revised to define the plurality of projections to include first and second projections disposed on the lens holder and in a defined relationship with the second projections projecting a predetermined distance from the lens holder to prevent deformation of the elastic support. Accordingly, the rejection of claims 2-5 under 35 USC 112, second paragraph, should now be withdrawn.

The rejection of claims 1 and 2 under 35 USC 102(b) as being anticipated by either of the references (1) JP 62-031036, (2) Masunaga, (3) Getreuer, et al or (4) Tomita, et al is respectfully traversed.

Claim 1 has been amended to limit the plurality of projections in the optical pick-up device as being provided on either the frame or the suspension holder or both with the projections acting as stoppers that restrict a rotation of the lens holder so as to prevent excessive deformation of the elastic supports. None of the cited references disclose a plurality of projections on either the frame and/or the suspension holder much less to provide the function of acting as stoppers that restrict a rotation of the lens holder so as to prevent excessive deformation of the elastic supports. Accordingly, claim 1 is believed to be patentable over each of the cited references under 35 USC 102(b).

Claim 2 has been amended into an independent claim which includes all of the limitations of claim 1 and also requires the plurality of projections to be disposed on the lens holder and to include first and second projections in a defined relationship with the second projections separated from the first projections by a predetermined distance. Claim 2, as amended, is clearly novel over each of the cited references under 35 USC 102(b).

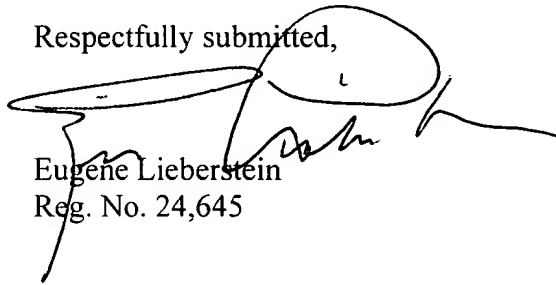
Claims 3-6 are dependent claim which depend from claim 2 and therefore believed to be patentable for the same reason as given above.

The rejection of claims 5 and 6 under 35 USC 103(a) as being unpatentable over the art as applied to claim 1 in view of what the Examiner considers well known to those skilled in the art or in view of Wada, et al is respectfully traversed.

For the Examiner to refer to the use of projections as being well known to those skilled in the art does not have any meaning unless the projections of the prior art serve the same function as defined in the claims of the subject invention. The projections of claims 1 and 2 perform the function of preventing deformation in a specified manner. More specifically, claim 1 as amended requires the plurality of projections to be provided on either the frame and/or the suspension holder or both with the projections acting as stoppers that restrict rotation of the lens holder so as to prevent excessive deformation of the elastic supports. None of the projections shown in any of the cited references can be regarded as projections which correspond in function to that taught in the subject invention i.e. act to prevent plastic deformation of the resilient elastic support members. In claim 2 the plurality of projections include first and second projections in a defined relationship and arrangement which is not taught or suggested in any of the cited references. For all of the above reasons, claims 1-7 are considered patentable over the cited references taken individually or in combination.

Reconsideration and allowance of claims 1-7 is respectfully solicited.

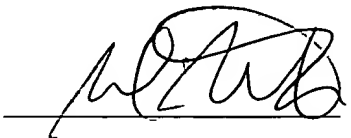
Respectfully submitted,


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MAILING CERTIFICATE

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as first class mail in an envelope addressed: Commissioner of Patents & Trademarks, Washington, DC 20231 on December 10, 2002.


Date: Dec. 10, 2002

AMENDMENTS TO THE CLAIMS

1. (Amended) An optical pick-up device comprising:

a lens that focuses light onto a surface of a recording medium;

a lens holder that holds the lens;

a suspension holder that supports the lens holder disposed opposite a distal end of the lens holder;

a frame formed so as to be disposed opposite both lateral surfaces of the lens holder and the distal end of the lens holder, the frame supporting the suspension holder;

a plurality of elastic supports that movably support the lens holder, a distal end of the elastic supports mounted on the suspension holder and a proximal end retained by the lens holder; and

an actuator that drives the lens holder, the actuator including a focus coil, a tracking coil and at least one magnet,

wherein a plurality of projections [is] are provided on at least one of [the lens holder,] the frame and the suspension holder, with the projections acting as stoppers that restrict [a] rotation of the lens holder so as to prevent excessive deformation of the elastic supports.

2. (Amended) [The] An optical pick-up device [as claimed in claim 1, wherein the] comprising:

a lens that focuses light onto a surface of a recording medium;

a lens holder that holds the lens;

a suspension holder that supports the lens holder disposed opposite a distal end of the lens holder;

a frame formed so as to be disposed opposite both lateral surfaces of the lens holder and the distal end of the lens holder, the frame supporting the suspension holder;

a plurality of elastic supports that movably support the lens holder, a distal end of the elastic supports mounted on the suspension holder and a proximal end retained by the lens holder;

an actuator that drives the lens holder, the actuator including a focus coil, a tracking coil and at least one magnet,

and a plurality of projections [is provided at least on one of either the lateral surfaces of the lens holder toward the proximal end of the lens holder and lateral surfaces of the frame] disposed on the lens holder including first and second projections wherein the first projections are located at both sides thereof, with the elastic supports fixed to the first projections and wherein the second projections are separated from the first projections a predetermined distance, such that the distance separating the second projections from the recording surface is smaller than the distance separating the first projections from the recording surface; and

wherein the second projections project a sufficient distance from the lens holder such that, even if the first projections come into contact with the frame and the lens holder rotates about a projection end of the first projections, the rotation will be controlled by the second projections so that the elastic support is prevented from being deformed physically.

5. (Amended) The optical pick-up device as claimed in claim [1] 2, wherein the plurality of projections is provided at least on the lateral surfaces of the lens holder toward the proximal end of the lens holder and on a surface of the suspension holder opposite the distal end of the lens holder.

6. (Amended) The optical pick-up device as claimed in claim [1] 2, wherein the elastic supports are cantilever springs.

7. (New) The optical pick-up device as claimed in claim 2 wherein the first projections and the second projections have outer surfaces at the respective ends thereof which project from the lens holder approximately the same distance.

AMENDED VERSION OF THE CLAIMS

1. An optical pick-up device comprising:

a lens that focuses light onto a surface of a recording medium;

a lens holder that holds the lens;

a suspension holder that supports the lens holder disposed opposite a distal end of the lens holder;

a frame formed so as to be disposed opposite both lateral surfaces of the lens holder and the distal end of the lens holder, the frame supporting the suspension holder;

a plurality of elastic supports that movably support the lens holder, a distal end of the elastic supports mounted on the suspension holder and a proximal end retained by the lens holder; and

an actuator that drives the lens holder, the actuator including a focus coil, a tracking coil and at least one magnet,

wherein a plurality of projections are provided on at least one of the frame and the suspension holder, with the projections acting as stoppers that restrict rotation of the lens holder so as to prevent excessive deformation of the elastic supports.

2. An optical pick-up device comprising:

a lens that focuses light onto a surface of a recording medium;

a lens holder that holds the lens;

a suspension holder that supports the lens holder disposed opposite a distal end of the lens holder;

a frame formed so as to be disposed opposite both lateral surfaces of the lens holder and the distal end of the lens holder, the frame supporting the suspension holder;

a plurality of elastic supports that movably support the lens holder, a distal end of the elastic supports mounted on the suspension holder and a proximal end retained by the lens holder;

an actuator that drives the lens holder, the actuator including a focus coil, a tracking coil and at least one magnet,

and a plurality of projections disposed on the lens holder including first and second projections wherein the first projections are located at both sides thereof, with the elastic supports fixed to the first projections and wherein the second projections are separated from the first projections a predetermined distance, such that the distance separating the second projections from the recording surface is smaller than the distance separating the first projections from the recording surface; and

wherein the second projections project a sufficient distance from the lens holder such that, even if the first projections come into contact with the frame and the lens holder rotates about a projection end of the first projections, the rotation will be controlled by the second projections so that the elastic support is prevented from being deformed physically.

5. The optical pick-up device as claimed in claim 2, wherein the plurality of projections is provided at least on the lateral surfaces of the lens holder toward the proximal end of the lens holder and on a surface of the suspension holder opposite the distal end of the lens holder.

6. The optical pick-up device as claimed in claim 2, wherein the elastic supports are cantilever springs.

7. The optical pick-up device as claimed in claim 2 wherein the first projections and the second projections have outer surfaces at the respective ends thereof which project from the lens holder approximately the same distance.